U. S. ARMY ENGINEER DIVISION, MISSOURI RIVER
CORPS OF ENGINEERS
U. S. Post Office and Court House
215 North 17th Street
Omaha, Nebraska 68101

MRD
Regulation
No. 1110-2-11 30 September 1964

ENGINEERING AND DESIGN

# Reservoir Sedimentation, Allowances for in Establishing Storage Space Allocations

1. Purpose: Delineation of Distribution of Sediment Storage Requirements in Reservoir Storage Allocations.

2. Policy: It is the policy of this office that the sedimentation reserve in reservoir projects will be distributed to assure that storage will be available to give full service to all project functions during the economic life of the project. The practice of allocating sediment storage as a "sediment pool" with a specified top elevation is misleading and unrealistic, and will not be followed; rather, the sedimentation storage will be distributed to the various storage zones in the manner in which sedimentation is expected to occur.

3. Procedure: In general, reservoir projects are designed for an economic life of 100 years; thus, the sediment storage to be provided should be equal to the anticipated 100 year sediment accumulation. This storage will be distributed, and the storage allocated to each project function will make allowance for this distribution. The manner of accomplishing this objective will vary with the functions for which the project is constructed, as follows:

a. Flood Control Only. The top of the flood control pool should be placed at the elevation where the reservoir capacity is equal to the total storage required for flood control and 100-year sedimentation. Initially the storage reserved for 100-year sedimentation could be used either for flood control or to form a temporary pool for recreation, fish and wildlife, etc. The interim use of this sediment reserve should be evaluated and recommendations thereon should be incorporated in project reports. If this evaluation indicates the desirability of interim use of the sediment reserve for recreation, fish and wildlife, etc., it should be recognized that as sediment accumulates in the reservoir the base of the flood control pool would be lowered accordingly to offset the loss of storage in the flood control pool. Under these circumstances, if original sedimentation allowances were correct, the temporary pool would vanish at the end of 100 years and all storage below the top of the flood control pool would be utilized to meet the flood control requirement. It would also be necessary in this case to give appropriate recognition to this lowering of the base of flood control in sizing the outlets.

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This Regulation rescinds Division Circular No 60-12, dated 16 May 1960.

b. Flood Control and Conservation. The top of the flood control pool should be placed at the elevation where the reservoir capacity is equal to the total storage required for flood control, conservation and 100-year sedimentation. The top of the conservation pool (base of flood control) should ordinarily be established on the basis of expected distribution of sediment at the end of 100 years. Thus, if one-third of the 100-year sediment is expected to deposit in the flood control zone and two-thirds in the conservation zone, the initial assignment of storage to each function should normally be on the basis of interim use of one-third of the sediment storage by flood control and two-thirds by conservation. By this procedure the elevation of the top of the conservation pool would remain fixed throughout the life of the project and storage allocations to flood control and to conservation-would initially be greater than the estimated requirements and gradually decrease to those requirements at the end of 100 years. Although initially the excess conservation storage (two-thirds of sediment allowance in the above example) could be used as a temporary pool to serve recreation, fish and wildlife, etc., the storage available for these purposes would gradually decrease as sediment accumulates.

c. Flood Control, Conservation and Permanent Pool. If a permanent pool is considered desirable and can be justified economically, it should be evaluated on its own merits and the total storage in the reservoir project increased accordingly. If a permanent pool is provided the top of the flood control pool should be placed at the elevation where the reservoir capacity is equal to the toted storage required for flood control, conservation, 100-year sedimentation, and the permanent pool. The top of the conservation pool should be established on the basis of expected distribution of sediment at the end of 100 years. In this case also, the top elevation of the conservation pool could be constant for the economic life of the projects assuming the expected sediment distribution in the reservoir proves to be reasonably corrects

4. Storage allocations in reservoir projects which are completed or under construction need not be modified to recognize the principles discussed in paragraph 2, although it would be desirable to do so in those cases where such is practicable. Project reports on future reservoirs should recognize these principles and discuss the evaluations made in arriving at recommended storage Locations and interim use of the storage reserved for sediment.

FOR THE DIVISION ENGINEER:

/s/
B. de MELKER
Colonel, Corps of Engineers
Deputy Division Engineer

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